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*Ranunculus bulbosus*; a plant in which all the flowers were at first double, without stamens or pistils; later, the axis was prolonged in each about two inches, and, at its extremity, produced a second similar flower.

*Linaria Canadensis*; a marked case of fasciation, the stem broadly flattened and about three-sixteenths of an inch wide. Collected at Hammononton, N. J.

*Erigeron strigosus* having the florets of the heads altered, each producing a secondary head with jointed pedicels that bore a leafy involucre just beneath the joints. The ray-flowers were more conspicuously altered, but this was probably owing only to their earlier development.

*Verbena urticaefolia* altered similarly to the last. This and the preceding are certainly curious cases of proliferation.

*Ilysanthes gratioloides* fruiting cleistogamously.

*Cirsium lanceolatum*.—In BULLETIN No. 4 of the current volume, Mr. W. E. Stone queries respecting a white-flowered form of this plant reported by me last year. I would state that it was a fully-developed specimen as regards size, etc. No plant of that species has appeared at the same place this season.

A hybrid *Verbascum*, found over half a mile from the one reported last year, seems to vary more toward *V. Lychnitis*. I suspect as that one was growing in a group of *V. Blattaria* the latter was the female parent, while this one, found in a group of *V. Lychnitis*, had, on the contrary, the last as female parent. I also observed a *V. Lychnitis* having the branches of the panicle terminating in a rosette of leaves like those of the stem, but smaller.

Concordville, Pa.

WILLIAM TRIMBLE.

**Botanical Notes.**—*Dimorphic Leaves of Aquatic Plants.*—In the *Comptes Rendus* of the Académie des Sciences (T. xcvi., p. 487), a note by Mr. E. Mer is published which throws some light on the curious dimorphic leaves of aquatic *Ranunculi*. He considers that as the petioles of submerged leaves elongate, while the contrary is the case with the floating leaves, it is probable that the petiole absorbs the nutritive matter to the detriment of the limb, the submerged leaves not producing starch and not being capable of transpiration. This does not apply to sessile leaves, since in them there is no disturbance of the nutritive balance, the dimensions only of the leaf being lessened.

*Chlorophyll.*—The investigations of Pringsheim on the nature and mode of formation of chlorophyll have been gone over by A. B. Frank (*vide Jour. Micr. Soc.*, ), and among other interesting results arrived at he concludes that the change of color of leaves in autumn is due to the disappearance of the protoplasm of the cells, in consequence of which the chlorophyll grains come in contact with the acid cell-sap, the result being the change of the green color into yellowish green or yellow, followed by the separation of oily drops of hypochlorin. The same change takes place in fruits and also in leaves which become yellow from want of light. Wiesner regards the protection of chlorophyll from injury as one of the functions of vegetable protoplasm.

*Electric Phenomena in Plants.*—Some interesting results have been obtained by A. J. Kunkel (*vide Jour. Micr. Soc.*), concerning the various electric phenomena observed in plants. He finds that the leaf-veins are generally positive toward the rest of the leaf, but the direction of the current is reversed if the spot on the leaf where the electrode is placed is wetted before the other electrode is placed on the vein. A spot long moistened is positive toward one freshly wetted. When a plant is bent or wounded the electrode near the bend or wound is negative to the other. Dr. J. Burdon Sanderson has noticed somewhat similar phenomena in the leaf of the Venus's fly-trap (*Dionaea muscipula*), the under surface of the sensitive lobe of the leaf being electro-negative to the upper at the moment that the leaf is irritated; after about half a second the upper surface becomes electro-negative and remains so for some time.

*Mummy Garlands.*—While Egyptologists of every nationality are congratulating themselves and each other upon the safety of the Boolak Museum, it will not be amiss to note that a priceless addition had been made to the treasures of that famous collection shortly before the breaking out of the late rebellion. Several of the royal mummies discovered last year at Dayr-el-Baharee were, it will be remembered, found garlanded with flowers, these flowers being for the most part in as perfect preservation as the specimen plants in a "Hortus Siccus." M. Arthur Rhoné, in a recent letter to *Le Temps*, has described the extremely curious way in which these garlands are woven. They consist of the petals and sepals of various flowers, detached from their stems, and enclosed each in a folded leaf of either the Egyptian willow (*Salix Safsaf*), or *Mimusops Kummel*, Bruce. The floral ornaments thus devised were then arranged in rows (the points being all set one way) and connected by means of a thread of date-leaf fibre woven in a kind of chain stitch. The whole resembles a coarse "edging" of vegetable lace-work. Among the flowers thus preserved are *Delphinium orientale*, *Nymphaea caerulea* or *N. Lotus*, *Sesbania Aegyptiaca*, and *Carthamus tinctorius*, so largely employed as a dye by the ancient inhabitants of the Nile valley. The dried fruit, as well as the dried yellow blossom of the *Acacia Nilotica* is likewise present; and mention is also made of the blossom of a species of watermelon now extinct. The foregoing are all interwoven in the garlands in which the mummy of Amen-hotep I. was elaborately swathed. With others of the royal mummies were found fine detached specimens of both kinds of lotus, the blue and the white, with stems, blossoms, and seed-pods complete. Still more interesting is it to learn that upon the mummy of the priest Nebsooni, maternal grandfather of King Pinotem II. (XXIst Dynasty), there was found a specimen of the lichen known to botanists as *Parmelia furfuracea*. This plant is indigenous to the islands of the Greek Archipelago, whence it must have been brought to Egypt at, or before, the period of the Her-Hor Dynasty (B.C. 1100 or B.C. 1200). Under the Arabic name of "Kheba," it is sold by the native druggists in Cairo to this day. These frail relics of many a vanished spring have been arranged for the Boolak Museum with exquisite skill by that eminent traveller and botanist Dr. Schweinfurth.

Classified, mounted, and, so to say, illustrated by modern examples of the same flowers and plants, they fill eleven cases—a collection absolutely unique, and likely ever to remain so. The hues of these Old World flowers are said to be as brilliant as those of their modern prototypes; and, but for the labels which show them to be three thousand years apart, no ordinary observer could distinguish between those which were buried with the Pharaohs and those which were gathered and dried only a few months ago.—*Academy*, Sept. 23rd 1882, quoted by Trimen's *Journal of Botany*.

#### Botanical Literature.

*Symbolae Licheno-Mycologicae. Beiträge zur Kenntniss der Grenzen zwischen Flechten und Pilzen*, von Dr. Arthur Minks. Zweiter Theil. 8vo. pp. 273. Kassel u. Berlin: Theodor Fischer, 1882.

This second volume of the laborious work of Dr. Minks is now published, and commends itself to botanists interested in the often undisputedly questionable relations of what have heretofore been taken for discomycetous and pyrenomycetous Fungi to Lichens, as a most carefully elaborated, and wholly new contribution to their history. The difficulty of this author's later writings recurs indeed here, that they presuppose an exceptional ability of microscopical manipulation, and an acquaintance with very minute structure which, in the field he occupies, no one perhaps fully shares with him; but it is not easy to believe that a genuine interest in the plants he investigates (to a considerable extent North American) can be satisfied without estimating the value of his results. The old reverence for species as ideal centres, which it was the naturalist's task to seek amid the boundless luxuriance of difference in nature, has been shaken, to say the least, by the prepossessions engendered by Darwin's thought; and the hosts ever-growing of "n. spp." with which the very existence, as scientific disciplines, of the classes brought together in thallophytal botany is threatened, find but scant opposition; yet surely no one can question that a competent and sincere attempt to exhaust the structural history of an obscure organism is worth vastly more than any diagnosis of it. That is no sufficient estimate of the systematist's toils which would reduce their result to a mere ticketing of natural objects, the largely accidental and arbitrary character of which work, in whatever hands, can only be relieved in so far as it is possible to confine it to the most experienced inquirers, to be accepted, in good part no doubt blindly, by the rest. But is there not more than this in the study of the system of nature? And can such study be really scientific if it content itself without taking account of the observations and results, and the criticism of genera and species of so honest and thorough-going, whether or not now, like all others mistaken an investigator as Minks?—E. TUCKERMAN.

#### SERIAL PUBLICATIONS.

*Proceedings of the Davenport Academy of Science.* Vol. iii., Part ii. (August.)—'Contributions to the Flora of Iowa,' by J. C. Arthur; 'Two new Species of *Oxytheca*' (*O. caryophylloides* and *O. Parishii*), by C. C. Parry.